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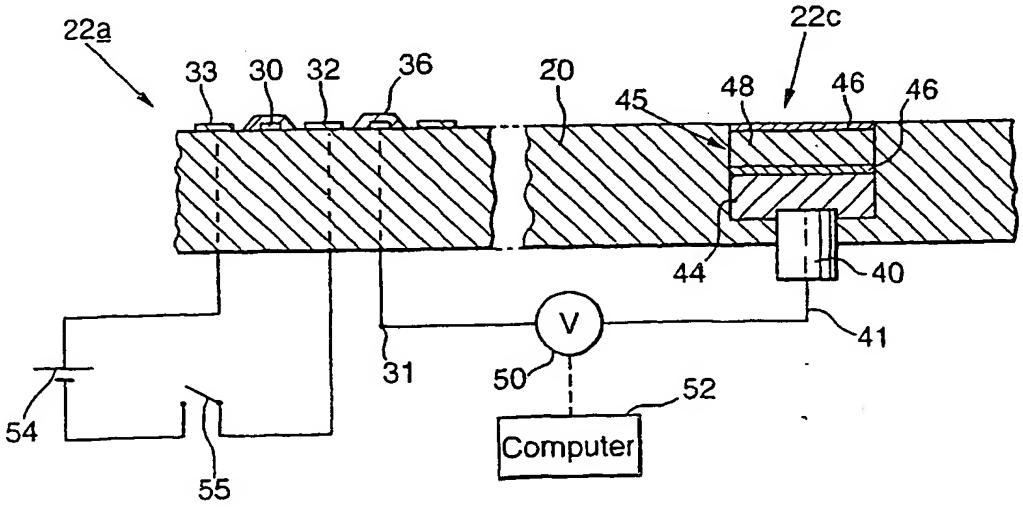
[Continued on next page]

(54) Title: CHEMICAL SENSOR



(57) Abstract: A sensor for detecting chemical properties of a liquid, for example in an oil well, includes a glass pH electrode (22a) and a reference electrode (22c). The glass electrode (22a) consists of a narrow sensor electrode (30) on the surface of an electrically insulating substrate (20), a layer of glass (36) covering the sensor electrode (30), and two cleaning electrodes (32, 33) one extending along each side of the sensor electrode along its entire sensing length. The cleaning electrodes (32, 33) are not covered by the layer of glass, and are no more than 3 mm apart from each other. Application of a voltage between them generates gas bubbles by electrolysis that dislodge any fouling from the glass electrode (22a). The sensor electrode (30) may be of zigzag form, with the cleaning electrodes (32, 33) interdigitated between the successive parts of the zigzag. A hydrophilic membrane (24) of sulphonated microporous PVdF provides further protection against fouling of the electrodes (22) by oil. This provides a compact, solid state sensor, which can be cleaned in situ.

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 99 56120 A (FENNELL PAUL ANTONY HARRY ;PEAT ROBERT (GB); AEA TECHNOLOGY PLC (G) 4 November 1999 (1999-11-04) abstract; figure 1 ---	1,2,12
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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